California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER A-021-0471 New On-Road Heavy-Duty Engines

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE [1]	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS [2]	ECS & SPECIAL FEATURES [3]	IDLING EMISSIONS CONTROL [5]
2008	8CEXH0912XAL	14.9	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR, OC, PTOX	30g

ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)
14.9	See attachment for engine models and ratings

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt; hr=hour;

[1] CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;

[2] L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;

[3] ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; NAC=NOx adsorption catalyst; SCR-U / SCR-N=selective catalytic reduction – urea / – ammonia; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; PTOX=periodic trap oxidizer; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR / EGR-C=exhaust gas recirculation / cooled EGR; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

[5] ESS=engine shutdown system (per 13 CCR 1956.8(a)(6)(A)(1); 30g=30 g/hr NOx (per 13 CCR 1956.8(a)(6)(C); ALT=alternative method (per 13 CCR 1956.8(a)(6)(D); Exempt=exempted per 13 CCR 1956.8(a)(6)(B) or for CNG/LNG fuel systems; N/A=not applicable (e.g., Otto engines and vehicles);

(Rev.: 2007-12-20)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.8; 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [ ] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.8 are in parentheses.).

in g/bhp-hr	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	0.14	0.14	*	*	*	*	15.5	15.5	0.01	0.01	*	*
FEL	*	*	1.25	1.25	1.2	1.2	*	*	*	*	*	*
CERT	0.01	0.000	1.12	0.92	1.1	0.9	0.8	0.1	0.01	0.005	*	*
NTE	0.21		1.88		1.8		19.4		0.02		*	

[4] g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle, including RMCSET=ram mode cycle supplemental emissions testing; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: Except in vehicle applications exempted per 13 CCR 1956.8(a)(6)(B), engines in this engine family certified under 13 CCR 1956.8(a)(6)(C) [30 g/hr NOx] and section 35.B.4 of the incorporated "California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" (HDDE Test Procedures) adopted Dec. 12, 2002, as last amended Sep. 1, 2006, shall be provided with an approved "Certified Clean Idle" label that shall be affixed to the vehicle into which the engine is installed.

BE IT FURTHER RESOLVED: The listed engine models have been certified to the split engine family standards under 13 CCR 1956.8(b) [diesel engines] or 13 CCR 1956.8(d) [Otto engines] and the incorporated 40 CFR 86.007-15(m)(9).

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: The listed engine models are conditionally certified pending submission of additional information to justify the auxiliary emission control device (AECD) used for engine protection. The manufacturer must demonstrate that the use of the AECD is the minimum strategy necessary for engine protection. The manufacturer has until March 31, 2008 to resolve concerns on this conditional certification. This Executive Order is effective through March 31, 2008; engines produced after the aforementioned effective date are deemed uncertified

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 18th day of January 2008.

Annette Hebert, Chief
Mobile Source Operations Division

Engine Model Summary Template

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
8CEXH0912XAL	1434;FR10637	ISX 500	525@1800	318	193	1850@1200	367	149	DPX, ~~PTOX, PCM,~~
8CEXH0912XAL	1434;FR10636	ISX 500ST	525@1800	318	193	1850@1200	367	149	TC, ~~PTOX, PCM,~~
8CEXH0912XAL	1434;FR10638	ISX 500	525@1800	318	193	1650@1200	326	132	CAC, ~~PTOX, PCM,~~
8CEXH0912XAL	1434;FR10639	ISX 485ST	500@1800	299	181	1850@1200	367	149	EGR ~~PTOX, PCM,~~
8CEXH0912XAL	1434;FR10640	ISX 485	500@1800	299	181	1850@1200	367	149	OC ~~PTOX, PCM,~~
8CEXH0912XAL	1434;FR10641	ISX 485	500@1800	299	181	1650@1200	326	132	PTOX ~~PTOX, PCM,~~
8CEXH0912XAL	1434;FR10642	ISX 450ST	450@1800	267	162	1750@1200	342	139	ECM PTOX, PCM,
8CEXH0912XAL	1434;FR10644	ISX 450	450@1800	267	162	1650@1200	326	132	↓ PTOX, PCM,
8CEXH0912XAL	1434;FR10645	ISX 450	450@1800	267	162	1550@1200	298	120	FUR PTOX, PCM,
8CEXH0912XAL	1434;FR10643	ISX 450ST	450@1800	267	162	1750@1200	342	139	~~PTOX~~ PTOX, PCM,
8CEXH0912XAL	1434;FR10634	ISX 500V	500@1800	299	181	1850@1200	367	149	mobile PTOX, PCM,
8CEXH0912XAL	1434;FR10635	ISX 500V	500@1800	299	181	1650@1200	326	132	PTOX, PCM,
8CEXH0912XAL	2733;FR10637	ISX 500	525@1800	318	193	1850@1200	367	149	PTOX, PCM,
8CEXH0912XAL	2733;FR10636	ISX 500ST	525@1800	318	193	1850@1200	367	149	PTOX, PCM,
8CEXH0912XAL	2733;FR10638	ISX 500	525@1800	318	193	1650@1200	326	132	PTOX, PCM,
8CEXH0912XAL	2733;FR10639	ISX 485ST	500@1800	299	181	1850@1200	367	149	PTOX, PCM,
8CEXH0912XAL	2733;FR10640	ISX 485	500@1800	299	181	1850@1200	367	149	PTOX, PCM,
8CEXH0912XAL	2733;FR10641	ISX 485	500@1800	299	181	1650@1200	326	132	PTOX, PCM,
8CEXH0912XAL	2733;FR10634	ISX 500V	500@1800	299	181	1850@1200	367	149	PTOX, PCM
8CEXH0912XAL	2733;FR10635	ISX 500V	500@1800	299	181	1650@1200	326	132	PTOX, PCM,
8CEXH0912XAL	2733;FR10695	ISX 455ST	478@1800	280	170	1750@1200	348	141	PTOX, PCM,

ATTACHMENT

A-021-471